ABSTRACT OF THE DISCLOSURE

Embodiments of a differential thermal expansion bonding device are described for the high volume bonding of laminae together to form a MECS device. One embodiment of the device comprises a frame, engager made of a solid, liquid or gas, preload with springs and platens. Other embodiments of a method for bonding laminae together to form a MECS device using surface mount technology (SMT) techniques are described, with one embodiment being directed towards conveyorized bonding. The method including providing laminae to be bonded that do not include a solder mask, microething at least a portion of at least one lamina, applying solder paste to a microetched portion, and bonding the laminae together using the solder paste. A method for continuously bonding laminae also is described, such as by using a conveyorized furnace for applying heat to a workpiece functionally associated with the bonding device. The method can include forced convective heating, cooling or both, using inert gas flush. A method and fixture for registering laminae compatible with the differential thermal expansion bonding device by using integral compliant features is also described.